METABOLISM

Clinical and Experimental

VOLUME III, 1954

GRUNE & STRATTON

NEW YORK and LONDON

EDITORIAL BOARD

EDITOR-IN-CHIEF

SAMUEL SOSKIN, *Los Angeles, Calif.*

CONSULTING EDITOR

FULLER ALBRIGHT, *Boston, Mass.*

ASSOCIATE EDITORS

EDWIN B. ASTWOOD, *Boston, Mass.*
GARFIELD G. DUNCAN, *Philadelphia, Pa.*
R. F. FARQUHARSON, *Toronto, Canada*
MARTIN G. GOLDNER, *New York, N. Y.*
NORMAN JOLLIFFE, *New York, N. Y.*
ANCEL KEYS, *Minneapolis, Minn.*
RACHMIEL LEVINE, *Chicago, Ill.*
IRVINE MCQUARRIE, *Minneapolis, Minn.*
JOHN P. PETERS, *New Haven, Conn.*
HERBERT POLLACK, *New York, N. Y.*
LEO T. SAMUELS, *Salt Lake City, Utah*
I. SNAPPER, *Brooklyn, N. Y.*
FREDERICK J. STARE, *Boston, Mass.*
DEWITT STETTEN, JR., *New York, N. Y*
S. J. THANNHAUSER, *Boston, Mass.*
GEORGE W. THORN, *Cambridge, Mass.*
ROBERT W. WISSLER, *Chicago, Ill.*

INTERNATIONAL BOARD OF ASSOCIATE EDITORS

Argentina
BERNARDO A. HOUSSAY, *Buenos Aires*

Belgium
MICHEL DE VISSCHER, *Louvain*

Brazil
A. B. DE ULHOA CINTRA, *São Paulo*

Chile
A. LIPSCHUTZ, *Santiago*

England
H. M. SINCLAIR, *Oxford*

France
ANDRÉ LICHTWITZ, *Paris*

Germany
KONRAD LANG, *Mainz*

India
AMIR CHAND, *New Delhi*

Italy
GINO BERGAMI, *Naples*

Israel
ERNST WERTHEIMER, *Jerusalem*

Netherlands
J. GROEN, *Amsterdam*

South Africa
JOHN F. BROCK, *Cape Town*

Spain
M. TAVERNA-TORM, *Barcelona*

Sweden
ROLF LUFT, *Stockholm*

Switzerland
RENÉ S. MACH, *Geneva*

Assistant Editor, TERRY HILLEL, *Los Angeles, Calif.*

VOL. III, 1954

METABOLISM

Clinical and Experimental

CONTENTS

No. 1

Nature and Prevention of Local Skin Lesions from Insulin Administration: Observations on 100 Patients
Maximilian Fabrykant and Benjamin I. Ashe 1
Serum Glucuronic Acid Levels in Diabetes Mellitus
Abraham Saltzman, Wendell T. Caraway and Irving A. Beck 11
Influence of Sulfur Amino Acid Deficiency on Cholesterol Metabolism
Louis C. Fillios and George V. Mann 16
Fat Metabolism in Nephrotic Hyperlipemia ..... *Walter Heymann, LeRoy W. Matthews, Joy Lemm, Paul Olynyk, Milena Salehar and Caroline Gilkey* 27
Antidiuretic Potency of the Blood in Diabetes Insipidus
Héctor Croxatto, Livio Bárnafi, Raúl López and F. Andrade 32
Effect of Posterior Pituitary Hormone on Water Metabolism in Thiamine Deficiency ..... *K. Guggenheim* 44
Nitrogen, Water and Electrolyte Metabolism on Protein and Protein-Free Low-Calorie Diets in Man ..... *Murray Quinn, Charles R. Kleeman, David E. Bass and Austin Henschel*
I. Water Restriction 49
II. Adequate Water Intake 68
Comparison of Anabolic Effects of Testosterone Cyclopentylpropionate with Testosterone Propionate
K. R. Crispell, William Parson and Robert Gahagan 78
Clinical Conference on Metabolic Problems: Essential Fructosuria 82
Abstracts 88

No. 2

Blood "Ammonia" Concentration in Liver Disease, and Liver Coma
Henry S. Traeger, George J. Gabuzda, Jr., Alice N. Ballou and Charles S. Davidson 99
Paradoxical Hyperglycemia in Diabetic Patients Treated with Insulin
Gerald T. Perkoff and Frank H. Tyler 110
Functions of Gonads, Thyroid and Adrenals in Hypopituitarism
John P. Peters, William J. German, Evelyn B. Man and Louis G. Welt 118
Basal Metabolism in Nutritional Edema
P. S. Venkatachalam, S. G. Srikantia and C. Gopalan 138

The Interconversion of Serum Lipoproteins in Vivo. . *Frank T. Pierce, Jr.* 142
Effect of Age on the Utilization of Various Carbohydrates by Man
Anthony A. Albanese, Reginald A. Higgons, Louise Orto, Aurora Belmont and Rosemarie DiLallo 154
Effects of Withdrawal and Restoration of Dietary Sodium Chloride upon Urinary Electrolytes in Patients with Hypertension. . *Frederick T. Hatch* 160
Serum Lipids in Normal and Alloxan Diabetic Rats
R. N. Cagan, Albert E. Sobel, R. A. Nichols and Leo Loewe 168
Clinical Conference on Metabolic Problems: Glycogen Storage Disease. . . . 173
Abstracts. 184

No. 3

Studies on the Diet, Body Fatness and Serum Cholesterol in Madrid, Spain
Ancel Keys, Francisco Vivanco, J. L. Rodriguez Miñon, Margaret Haney Keys and H. Castro Mendoza 195
Effect of Polylysine on Alimentary Lipemia and Its Clearing by Heparin in Dogs. . . . . *Yechezkel Stein, André de Vries, Leo Wislicki and Ephraim Katchalski* 213
Effect of Thyroid Extract on Serum Lipoproteins and Serum Cholesterol
Beverly Strisower, John W. Gofman, Elmer F. Galioni, Albert A. Almada and Alexander Simon 218
Lipoproteins in Infectious and Serum Hepatitis
Frank T. Pierce, Jr., Joe R. Kimmel and Thomas W. Burns 228
The Relative Roles of Sodium and Chloride in the Salt-Retaining Action of Desoxycorticosterone in Man
Theodore N. Pullman and William W. McClure 240
Blood Volume and Basal Metabolic Rate of Eskimos
G. Malcolm Brown, G. S. Bird, Lorna M. Boag, D. J. Delahaye, J. E. Green, J. D. Hatcher and John Page 247
The Use of Oral Choline in Cystinuria. . *Victor Coxon and Felix O. Kolb* 255
The Relationship Among Glycosuria, Food Intake and Body Weight in Alloxan Diabetes. . . . *F. M. Sturtevant, L. D. Calvin and N. E. Fuller* 262
Coexisting Diabetes Mellitus and Addison's Disease: Reports of Two Cases. . . . . *Meyer Markovitz* 268
Clinical Conference on Metabolic Problems: Metastasis to the Pituitary Gland with Diabetes Insipidus and Hypopotassemia. 274
Abstracts. 279

No. 4

Ascitic Fluid and Plasma Protein Exchange in Cirrhosis of the Liver: Studies with Radioiodinated Human Serum Albumin and Gamma Globulin
Franz K. Bauer, William H. Blahd, Max Fields and Gloria Getchell 289
Treatment of Recurrent Hyperthyroidism with Radioactive Iodine
Bernhard G. Anderson 297
Studies on Toxemia of Pregnancy: Effects of Corticotropic Hormone (ACTH) on the Hemodynamics and the Excretion of Electrolytes of Normal Pregnant Women. . . . . *N. S. Assali and Roy Suyemoto* 303

Body Sodium and Potassium:
I. Simultaneous Measurement of Exchangeable Sodium and Potassium in Man by Isotope Dilution
Anthony H. James, Laura Brooks, Isidore S. Edelman, John M. Olney and Francis D. Moore 313
II. A Comparison of Metabolic Balance and Isotope Dilution Methods of Study. *Graham M. Wilson, John M. Olney, Laura Brooks, J. Allan Myrden, Margaret R. Ball and Francis D. Moore* 324
III. Inter-related Trends in Alimentary, Renal and Cardiovascular Disease; Lack of Correlation between Body Stores and Plasma Concentration
Francis D. Moore, Isidore S. Edelman, John M. Olney, Anthony H. James, Laura Brooks and Graham M. Wilson 334
Dietary Dilution Studies in Mice with Gold Thioglucose-Induced Obesity and in Mice with the Hereditary Obesity-Diabetes Syndrome
William Parson, James L. Camp, III, and K. R. Crispell 351
Effects of Riboflavin Deficiency on Insulin Sensitivity in the Rat
Benjamin H. Ershoff 357
Clinical Discussion: Adrenocortical Hyperfunction, with and without Tumor
Martin Perlmutter 364
Abstracts 374

No. 5

Studies on Human Bone from South African Bantu Subjects:
I. Chemical Composition of Ribs from Subjects Habituated to a Diet Low in Calcium. *A. R. P. Walker and Ulla B. Arvidsson* 385
II. Histopathological Changes in the Ribs of South African Bantu Infants. *John Higginson* 392
Distribution of Fluid and Sodium in Healthy Adults
D. Ikkos, R. Luft and B. Sjögren 400
Volume of the Fluid Compartments in Human and Experimental Hypertension. *H. C. Teng, Alvin P. Shapiro and Arthur Grollman* 405
Homoplastic Transplants of Fetal Adrenal Glands in Patients with Skin Diseases Responding to Adrenocorticotropic Hormone (ACTH) and/or Cortisone. *F. Homburger and C. D. Bonner* 412
Effect of Cortisone and Desoxycorticosterone Acetate on Plasma Lipids of Adrenalectomized Dogs
N. R. DiLuzio, Moris L. Shore and D. B. Zilversmit 424
Effect of Adrenocortical Hormones on Phospholipid Turnover of Adrenalectomized Dogs. *D. B. Zilversmit, N. R. DiLuzio and Moris L. Shore* 433
Cortisone Metabolism in the Perfused Normal and Experimental Cirrhotic Rat Liver. *Leon L. Miller and Leonard R. Axelrod* 438
Hyperglycemic Action of Pancreatic Extracts from Duct-Ligated, Alloxanized and Cobalt-Treated Dogs
Sydney S. Lazarus, Bruno W. Volk and Martin G. Goldner 449
Influence of Synthalin A on Glucose Absorption in Normal and Experimental Diabetic Animals. *Willard O. Read and John H. Fodden* 456

Influence of Benemid on Urinary Excretion of Phosphate in Hypoparathyroidism. . . . *Luke R. Pascale, Alvin Dubin and William S. Hoffman* 462
Abstracts 471

No. 6

Clinical Uses of Intravenous Hydrocortisone
J. Max Rukes, Richard H. Orr and Peter H. Forsham 481
Modification of the Reddy-Jenkins-Thorn Method for the Estimation of 17-Hydroxycorticoids in Urine . . . . . *William J. Reddy* 489
The Effects of Insulin, Histamine, Bacterial Pyrogen, and the Antabuse-Alcohol Reaction upon the Levels of 17-Hydroxycorticosteroids in the Peripheral Blood of Man
Eugene L. Bliss, Claude J. Migeon, Kristen Eik-Nes, Avery A. Sandberg and Leo T. Samuels 493
Influence of Cortisone and Vitamine B_{12} on the Growth and P^{32} Uptake of Adrenal and Lymphoid Tissue
Poonamalle R. Venkataraman, Alvin Dubin and Morris T. Friedell 502
Use of Anionic Exchange Resin for the Determination of Protein-Bound I^{131} in Human Plasma . . . . . *Kenneth G. Scott and William A. Reilly* 506
I^{131} Excretion after Injection of Radiothyroxine into Hyperthyroid, Hypothyroid or Normal Rats . . . . . *John R. Hogness, Thomas Wong and Robert H. Williams* 510
Pigment/Creatinine Ratio in the Diagnosis of Thyroid Dysfunction
Gerald J. Friedman, Jefferson J. Vorzimer, Herbert R. Marcus, Emmanuel Dickler, William V. Tenzell, Abraham Geffen, Louis Venet and Irving Feuer 518
Protein-Sparing Action of Intravenously Administered Carbohydrate Solutions . . . . . *Anthony A. Albanese, William H. Arnold, D. Randall Hays, Aurora Belmont, Louise Orto and Rosemarie Di Lallo* 523
Body Sodium and Potassium: IV. The Normal Total Exchangeable Sodium; Its Measurement and Magnitude
I. S. Edelman, A. H. James, L. Brooks and F. D. Moore 530
The Transport of Lipids into Adipose Tissue . . *Illa Stern and B. Shapiro* 539
Obesity—A Brief Review of the Problem . . . . . *George H. Berryman* 544
Letter to the Editor: Pseudohypoglycemic Reactions in Labile Diabetics . . 561
Abstracts 562